

Remarks

Amendments

Claims 1 and 14 have been amended to insert language regarding the S and D material portions of the amphipathic copolymer. Antecedent basis for this amendment is located in the specification at page 11, lines 7-14 and at page 16, line 10.

It is respectfully submitted that no new matter is introduced by these amendments.

Objections to the specification

The Office Action states that the pending applications should be updated. This has been accomplished by the present amendment.

The Office Action additionally states that trademarks should be capitalized. In review of the specification, it would appear that trademark usage is proper in this application. Specifically, the terms used on page 16 are capitalized, and additionally identified as trademarks by the TM symbol. It is therefore respectfully submitted that their usage is proper in the present application.

Claim Rejections

Claims 1, 5, 6, 14, 24 and 25 have been rejected under 35 USC 112, second paragraph as being indefinite.

More specifically, the claims have been stated to be indefinite in the terms S and D. The independent claims have been amended to relate these terms to the carrier liquid.

Claims 1-12 have been rejected under 35 USC 103 as being unpatentable over Baker 6,649,316 in view of Sacripante and Batlaw.

The present claims relate to an amphipathic copolymer comprising one or more S portions and one or more D portions as defined in the specification and described in the claims as amended. This amphipathic copolymer has a chromophore covalently bonded thereto via a urethane, urea or amide linkage.

The amphipathic copolymer construction provides particular advantages in manufacturing and in use in toner compositions. As noted in the present specification at page 9, these copolymers provide exceptionally useful components in toner compositions,

because they provide easily prepared color-imparting particles that provide excellent color rendition. The linkage between these chromophores and the amphipathic copolymers are surprisingly resilient, which provides excellent performance properties in toner compositions even when exposed to shear conditions, such as may be required under handling or milling operations, for example to reduce agglomerations or particle size. The present invention provides an advantage in that the covalently bonded chromophores are better associated with the polymer than a pigment could be. As discussed in the present specification at page 10, conventionally pigments are used in toner compositions to provide the desired color rendition of the toner and to produce the desired image. Because the present chromophore is covalently bonded to the amphipathic copolymer, the toner composition may be more stable, since no pigment will be dissociated from the amphipathic copolymer. Toners of the present invention therefore have better color stability because the color component of the toner from the chromophore that is covalently bound to the amphipathic copolymer will not separate from the binder, and additionally toners of the present invention that do not contain pigments at all experience no pigment separation from the binder.

Baker 6,649,316 describes a phase change developer comprising: (a) a carrier having a Kauri-butanol number less than 30; and (b) an organosol comprising a graft (co)polymeric steric stabilizer covalently bonded to a thermoplastic (co)polymeric core that is insoluble in said carrier, and said (co)polymeric steric stabilizer comprises a crystallizing polymeric moiety that independently and reversibly crystallizes at or above 30°C, wherein said phase change developer has a melting point at or above 22°C. In this reference, color is provided by colorant particles (see column 9, lines 28-30), and not by a chromophore that is covalently bound to the amphipathic copolymer thereto via a urethane, urea or amide linkage as required in the present claims.

Sacripante '412 discloses an ink for ink jet printing that includes an emulsifiable dye-polymer resin that includes a dye chemically attached to the polymer resin. Thus, Sacripante does not teach or suggest an amphipathic copolymer having S material portions and the D material portions that have respective solubilities in a liquid carrier having a Kauri-butanol number less than 30 ml as detailed in the present claims.

Batlaw '311 discloses colorant compounds that are the addition product of an organic chromophore having at least one reactive hydroxyl or amine substituent, a mono or polyisocyanate, and/or an alcohol. The compound is disclosed to provide solubility in oil-based ink compositions, complete water resistance and excellent oil based ink compositions. See the Abstract. These colorant compounds are taught to be reacted with a long chain alcohol to achieve the desired solubility characteristics of the final compound. See column 2, lines 56-67. Batlaw does not teach or suggest reaction of a chromophore with suggest an amphipathic copolymer having S material portions and the D material portions that have respective solubilities in a liquid carrier having a Kauri-butanol number less than 30 ml as detailed in the present claims.

The skilled artisan would have had no motivation to prepare an amphipathic copolymer of the present claims having a chromophore covalently bonded thereto via a urethane, urea or amide linkage. Further, one would not have predicted that such amphipathic copolymers would provide excellent color rendition, resiliency, and performance properties in toner compositions as presently observed.

Claim Rejections – Double Patenting

Claims 1-12 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-24 of copending Application No. 10/880984 in view of Baker.

Patent application 10/880984, which is now Patent Application Publication 2005/0009952 A1, discloses ink dispersions wherein organosol particles are prepared that interact strongly with colorant pigment particles. See column 5, paragraph 0060. The present invention, in contrast, provides superior performance in that the material that is covalently bonded is not a pigment particle, but rather a chromophore compound. Thus, Patent application 10/880984 does not teach or suggest an amphipathic copolymer of the present claims having a chromophore covalently bonded thereto via a urethane, urea or amide linkage, and would not suggest the advantages as identified in the present application. As noted above, Baker '316 provides no teaching or suggestion that would bridge the gap between the present application and the cited application. It is

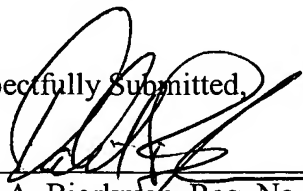
respectfully submitted that this rejection under the judicially created doctrine of obviousness-type double patenting is inappropriate and should be withdrawn.

Conclusion

In view of the above remarks, it is respectfully submitted that the foregoing is fully responsive to the outstanding Office action. In the event that a phone conference between the Examiner and the Applicant's undersigned attorney would help resolve any issues in the application, the Examiner is invited to contact said attorney at (651) 275-9811.

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Respectfully Submitted,

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